REMARKS

Upon entry of this Amendment, claims 1, 5, 7-17 and 19 will be all the claims pending in the application. Claims 1, 5, 7-17 and 19 have been amended. The preamble of the claims has been amended to recite "A composition for injection treatment of wood for preservation", support for which can be found at page 59, lines 17-18 of the present specification. In addition, claim 1 has been amended to incorporate claims 4 and 18, which have been canceled. Further, claims 5, 12, 13 and 19 have been amended for purposes of clarity, and claims 5 and 7 were amended so that they do not depend from canceled claims.

Applicants respectfully submit that with the entry of the proposed amendments, the present application will be in condition for allowance. Since the amendments raise no new issues, entry of the above amendments is respectfully requested.

Initially, Applicants submit that the Examiner has not returned an initialed and signed copy of Form PTO-1449 filed with Applicants' IDS on September 15, 1999. Accordingly, the Examiner is respectfully requested to do so.

I. Response to rejection of claims 5, 12, 13 and 19 under 35 U.S.C. § 112, second paragraph

On pages 2-4 of the Office Action, claims 5, 12, 13 and 19 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

A. The recitation in claim 5, "removing a portion of a water insoluble solid

component" is indefinite because the claim does not state what the component is being removed from.

Applicants have inserted --from a pulp waste liquor-- between "component" and "by centrifugation", as suggested by the Examiner.

B. The recitation in claims 12 and 13, "equivalent", is indefinite because it is not clear whether the recitation means that the compound is the same or similar to that, and what the similarity or "equivalence" must be.

Applicants have replaced "equivalent to" with -- the same as--, as suggested by the Examiner.

C. The recitation "high concentration" in claim 19 is indefinite because it is not clear how high the concentration must be.

Applicants have deleted the phrase "high concentration", as suggested by the Examiner.

In view of the above, Applicants respectfully submit that the rejections have been overcome and respectfully request that the rejection be withdrawn.

II. **Response to rejection of claims 1-3, 5-15 and 17-19 under 35 U.S.C. § 102(b)**

On pages 4-8 of the Office Action, the rejection of claims 1-3, 5-15 and 17-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Schneider et al. is maintained for the reasons of record.

Basically, the Examiner asserts that Schneider clearly discloses "a method of enzymatic polymerization and/or modification of lignin or lignin containing material, the method comprising treatment of the lignin or lignin containing material with a laccase or a laccase related enzyme in the presence of a source of oxygen and in the

presence of an enhancing agent of the invention." *See* Schneider at pages 6 and 7. In addition, the Examiner argues that the mixture resulting from Schneider's process is a composition which contains an enzyme and lignin.

Applicants respond as follows.

The present invention according to claim 1 is directed to a composition comprising (1) an enzyme having a polyphenol oxidizing activity having an optimum reaction pH on an alkaline side not lower than pH 7.5 and (2) lignosulfonic acid or lignosulfonate as a substrate therefor. The polyphenol oxidizing activity is measured using syringaldazine and a pH of 7.5 or higher provides an efficient macromolecularization reaction. *See* page 19, lines 11-25.

Schneider does not disclose an enzyme having a polyphenol oxidizing activity pH on an alkaline side not lower than pH 7.5. In addition, Schneider does not teach or suggest lignosulfonic acid or lignosulfonate as substrates. Therefore, Schneider fails to teach or suggest the present invention.

In view of the above, withdrawal of the foregoing rejection is respectfully requested.

III. **Response to rejection of claims 1-6, 8, 15 and 19 under 35 U.S.C. § 102(b)**

On pages 8-10 of the Office Action, the rejection of claims 1-6, 8, 15 and 19 under 35 U.S.C. § 102(b) as being anticipated by Haars et al. and the rejection of claims 1-3, 5, 6, 8, 15 and 19 under 35 U.S.C. § 102(b) as being anticipated by Yde are maintained for the reasons of record.

Basically, the Examiner points out that the references disclose compositions containing the claimed ingredients.

Applicants respond as follows.

Yde discloses a composition containing lignin and a phenol oxidizing enzyme, such as laccase or peroxidase. In addition, Haars discloses a composition containing phenolic substances, such as lignin sulfonate, and an enzyme, such as laccase or peroxidase.

However, neither Yde nor Haars discloses an enzyme having a polyphenol oxidizing activity pH on an alkaline side not lower than pH 7.5. Therefore, Yde and Haars fail to teach or suggest the present invention.

In view of the above, withdrawal of the foregoing rejection is respectfully requested.

IV. **Response to rejection of claims 1, 2, 6, 8, 15 and 19 under 35 U.S.C. § 102(b)**

On pages 10-12 of the Office Action the rejection of claims 1, 2, 6, 8, 15 and 19 under 35 U.S.C. § 102(b) as being anticipated by Isao Kaneko et al., the rejection of claims 1, 2, 6, 15 and 19 under 35 U.S.C. § 102(b) as being anticipated by Sakota et al. and the rejection of claims 1, 2, 6, 8, 15 and 19 under 35 U.S.C. § 102(b) as anticipated by Miyakoshi et al. are maintained for the reasons of record.

Basically, the Examiner asserts that Applicants' claims are not directed to methods, but to compositions, and that the compositions of the present invention are taught by the cited references, which disclose compositions containing the claimed ingredients.

Applicants respond as follows.

Kaneko discloses a composition containing peroxidase and a phenol monomer. Sakota discloses a composition containing laccase and a catechol derivative. Miyakoshi

discloses a composition containing catechol derivatives and laccase.

However, the cited references do not disclose an enzyme having a polyphenol oxidizing activity pH on an alkaline side not lower than pH 7.5. In addition, the cited references do not teach or suggest lignosulfonic acid or lignosulfonate as a substrate. Therefore, the present invention is not taught or suggested by the cited references.

In view of the above, withdrawal of the foregoing rejection is respectfully requested.

V. Response to rejection of claims 1-19 under 35 U.S.C. § 103

On pages 12-13 of the Office Action, the rejection of claims 1-19 under 35 U.S.C. 103(a) as being unpatentable over Haars et al, Yde and Isao ("Kaneko") is maintained, for the reasons of record.

Basically, the Examiner asserts that a person of ordinary skill in the art would recognize that the hydrogen peroxide required by peroxidases could have been readily generated enzymatically *in situ*.

Applicants respond as follows.

As discussed above, Haars, Yde and Kaneko do not disclose an enzyme having a polyphenol oxidizing activity pH on an alkaline side not lower than pH 7.5. Therefore, Applicants submit that the cited references fail to teach or suggest the present invention.

In addition, one of ordinary skill in the art would not have recognized that the hydrogen peroxide required by peroxidases could have been readily generated enzymatically *in situ*. For example, Kaneko discloses the addition of peroxide to the reaction. *See* Abstract. In addition, Yde discloses an enzyme system with a peroxidase

together with H_2O_2. *See* page 3, lines 1-2. Accordingly, one of ordinary skill in the art would not be motivated to use an enzyme having a peroxidase activity and an oxidase capable of producing hydrogen peroxide because the prior art does not provide such motivation.

In view of the above, withdrawal of the foregoing rejection is respectfully requested.

VI. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 2-4, 6 and 18 are canceled.

The claims are amended as follows:

1. (amended) A composition for [treating the inside of a porous article] injection treatment of wood for preservation comprising an enzyme having a polyphenol oxidizing activity and an optimum reaction pH on an alkaline side not lower than pH 7.5 when activity is measured using syringaldazine, and a lignosulfonic acid or lignosulfonate as a substrate therefor.

5. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim [3 or 4] 1, wherein the substrate for the enzyme comprises [lignin], lignosulfonic acid[,] or lignosulfonate obtainable by removing a portion of a water insoluble solid component of waste pulp liquors by centrifugation or filtration.

7. (twice amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim [2] 1, wherein the composition contains an unsaturated fatty acid, an unsaturated alcohol or an unsaturated alkyl compound.

8. (twice amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 1, wherein the composition contains at least one chemical agent selected from a fragrant, a

deodorant, a rust preventive, a flame retardant, an antibacterial agent, an antiseptic, a sanitizer, an insect-repellent, an antiviral agent, and an organism-repellent.

9. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 8, wherein the chemical agent is a solution or powder of a metal salt, a metal compound, or a metal complex.

10. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 9, wherein the metal is at least one metal selected from copper, arsenic, zinc, chromium, nickel, aluminum, molybdenum, magnesium, or silver.

11. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 8, wherein the chemical agent is a solution or powder of a boron salt, a boron based compound, or a boron-containing complex.

12. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 8, wherein the chemical agent is an extract or extracted component from a plant, or a synthetic compound having a chemical agent structure [equivalent to] the same as that of the extracted component from the plant.

13. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 12, wherein the extracted component from a plant or the synthetic compound having a chemical agent structure [equivalent to] the same as that of the extracted component from the plant

comprises tropolones, monoterpenes, sesquiterpenes, polyphenols, naphthalene derivatives, long chain aliphatic alcohols, aldehydes, or allyl isothiocyanate.

14. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 8, wherein the chemical agent is an aromatic compound or a cyclic compound, having one or more substituent(s) selected from a hydroxyl group, an amino group, a halogen atom, and a nitro group.

15. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 1, wherein the enzyme having a polyphenol oxidizing activity is a catechol oxidase, a laccase, a polyphenol oxidase, an ascorbic acid oxidase, or a bilirubin oxidase.

16. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 1, wherein the enzyme having a polyphenol oxidizing activity is a mixture of an enzyme having a peroxidase activity and an oxidase capable of producing hydrogen peroxide.

17. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 1, 15 or 16, wherein the enzyme having a polyphenol oxidizing activity is an enzyme obtainable by cultivating genus *Myrothecium*.

19. (amended) The composition for [treating the inside of a porous article] injection treatment of wood for preservation as claimed in claim 1, wherein the composition is in the form of a [high concentration] solution to be diluted upon use, or powder or granulated powder to be dissolved upon use.